

# **EXHIBIT 13**

**Exhibit No. 13**

**Infringement Claim Chart of U.S. Patent No. 8,064,142 by Optotune and Edmund Optics<sup>1</sup>**

Accused products including Optotune's liquid focus tunable lenses based on manual actuation (including ML-20-37) and Edmund Optics' liquid lens products that integrate Optotune's manually actuated liquid focus tunable lenses (including Optotune Focus Tunable Lens) (the "Accused Products") infringe each element of the Asserted Claims of U.S. Patent No. 8,064,142 (the "'142 Patent"). Further, Optotune AG and Edmund Optics instruct their customers regarding the use of the Accused Products to enable the use of the features identified throughout this chart. Optotune AG and Edmund Optics intend and instruct that their customers use these features in a manner that practices each element of the Asserted Claims. Plaintiff contends each of the following limitations is met literally, and, to the extent a limitation is not met literally, it is met under the doctrine of equivalents.

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<sup>1</sup> This claim chart is based on the information currently available to Plaintiff and is intended to be exemplary in nature. Plaintiff reserves all rights to update and elaborate their infringement positions, including as Plaintiff obtains additional information during the course of discovery.

Claim	Accused Products
[25Pre] A fluidic lens device, comprising:	<p>The Accused Products meet this limitation.</p> <p>The Optotune ML-20-37 includes a fluidic a fluidic lens device (i.e. manually tunable lens ML-20-37 with optical fluid).</p> <p style="text-align: center;"><b><u>Working principle</u></b></p> <p style="text-align: center;"><u>Optotune's focus tunable lenses are shape-changing lenses based on a combination of optical fluids and a polymer membrane. The core element consists of a container, which is filled with an optical liquid and sealed off with a thin, elastic polymer membrane. A circular ring that pushes onto the center of the membrane shapes the tunable lens. The deflection of the membrane and with that the radius of the lens can be changed by pushing the ring towards the membrane, by exerting a pressure to the outer part of the membrane or by pumping liquid into or out of the container.</u></p> <p>Optotune Focus tunable lenses at 1.</p>

The curvature of the lens can be manually changed from convex to flat to concave by rotating the outer ring attached to the lens. The focal length is accordingly tuned to a desired value.

The following table gives the specification of our standard manual lens. Lens aperture, thickness and tuning range can be adapted in the framework of a customization project.

#### **Mechanical specifications**

Optical aperture <sup>1</sup>	20	mm
External diameter	37 (39 including gears)	mm
Thickness	13.2 (without adapter), 18.6 (with adapter)	mm
Weight	13.7 (without adapter) / 25.2 (with adapter)	g
Max torque	80 (at gear teeth)	mNm
Full tuning angle	337	°

Optotune ML-20-37-Series Spec Sheet at 1.

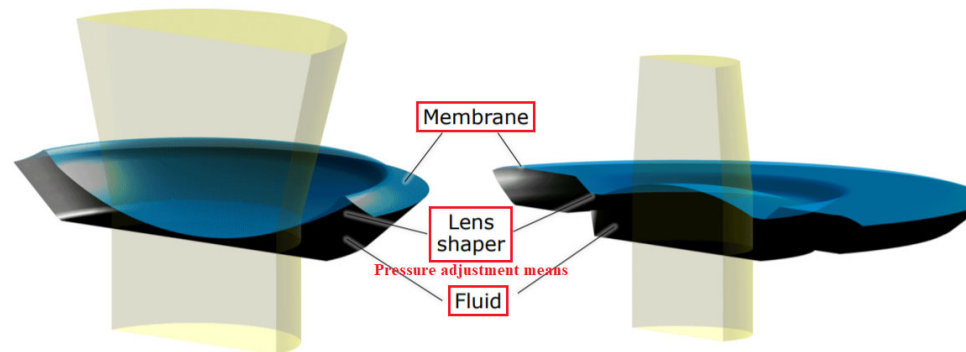
#### **Working principle based on membrane and fluid**



**Mechanically tunable lens**



**Electrically tunable lens**

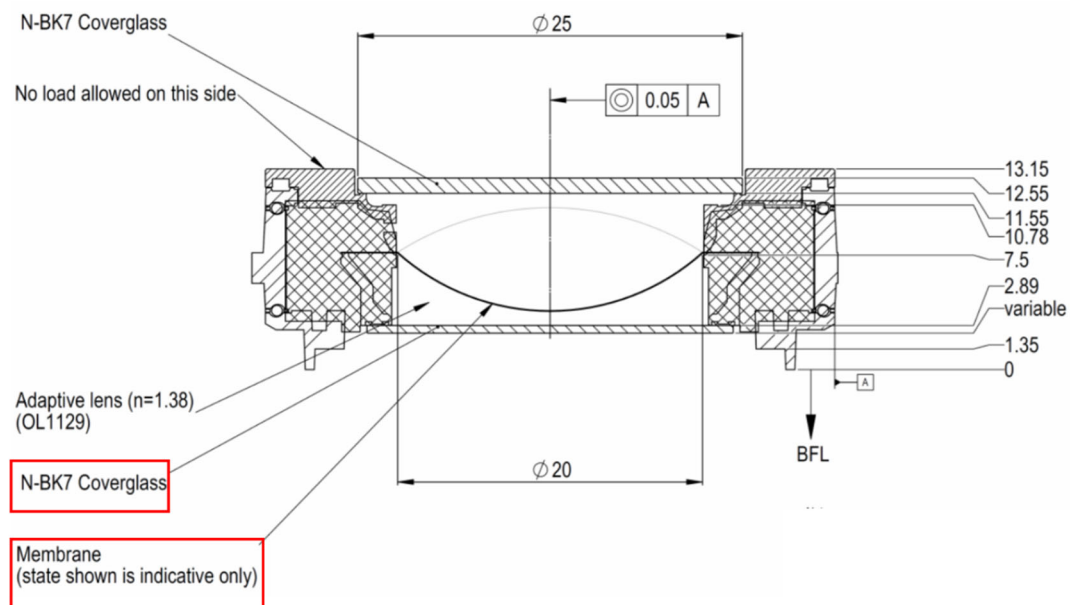


Optotune focus-tunable lenses for machine vision at 3.



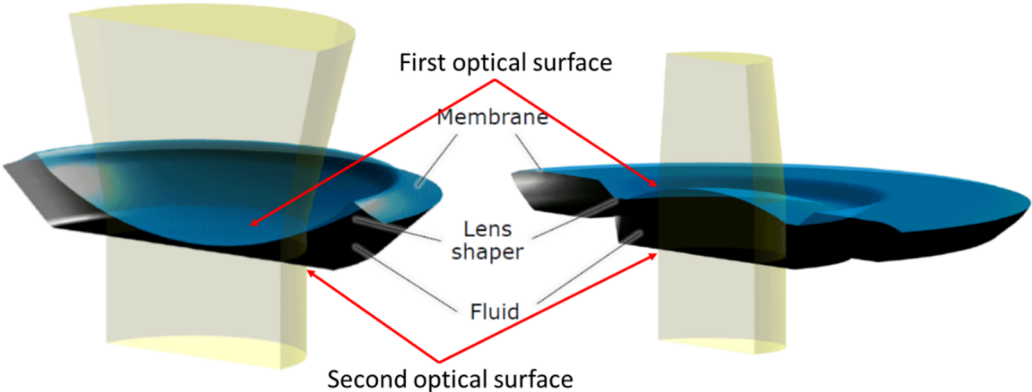
[25A] a fluidic lens having a first optical surface, a second optical surface; and

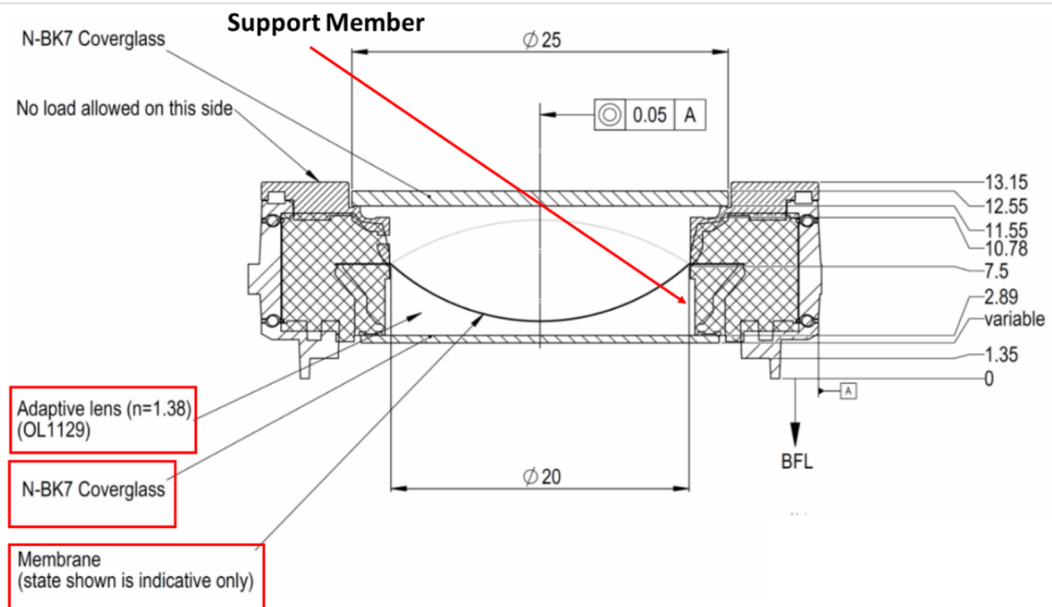
The Accused Products meet this limitation.

The Optotune ML-20-37 includes a membrane (i.e., first optical surface) and a cover glass (i.e., second optical surface) at the bottom.



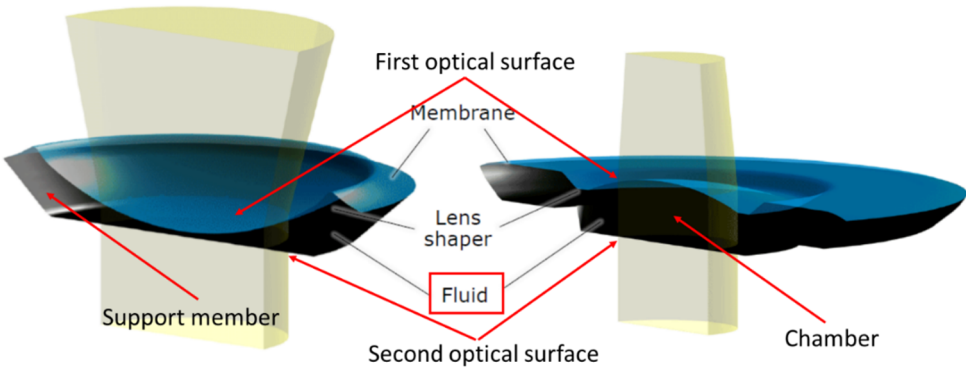


Optotune ML-20-37-Series Spec Sheet at 4.

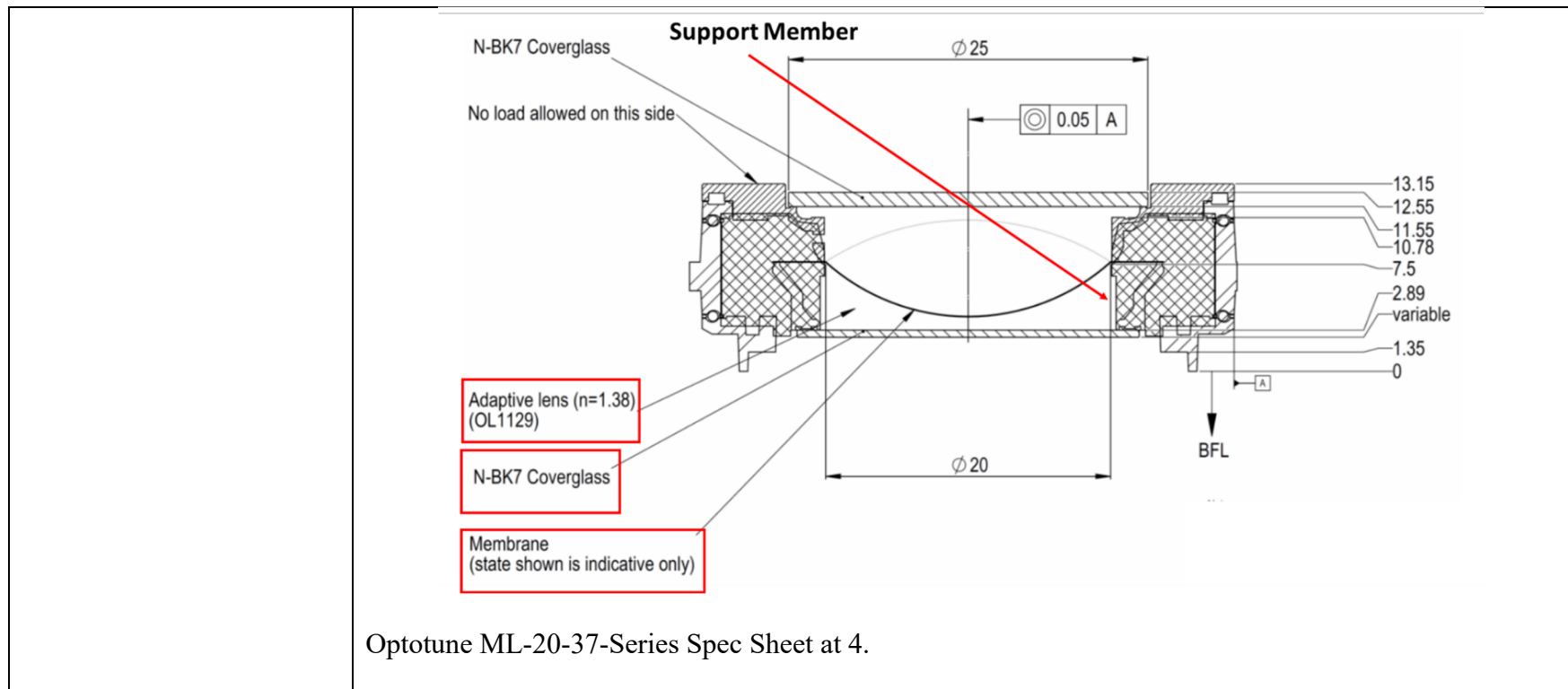
	<p style="text-align: center;"><b>Working principle based on membrane and fluid</b></p> <hr style="border: 1px solid blue;"/> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p><b>Mechanically tunable lens</b></p> </div> <div style="text-align: center;">  <p><b>Electrically tunable lens</b></p> </div> </div>  <p style="text-align: center;">Optotune focus-tunable lenses for machine vision at 3.</p>
<p>[25B] a support member disposed between the first and second optical surfaces defining a chamber,</p>	<p>The Accused Products meet this limitation.</p> <p>The Optotune ML-20-37 includes a side wall (i.e., support member) disposed between the membrane (i.e., first optical surface) and the cover glass (i.e., second optical surface). The side wall defines a chamber including the space enclosed by the side wall, the membrane, and the cover glass. The chamber is configured to hold the optical fluid (also referred to as adaptive lens).</p>



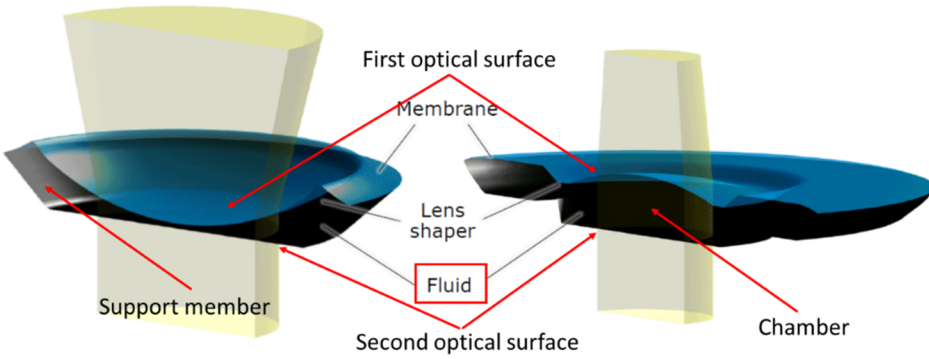


Optotune ML-20-37-Series Spec Sheet at 4.

	<p style="text-align: center;"><b>Working principle based on membrane and fluid</b></p> <hr/> <div style="text-align: center;">  <b>Mechanically tunable lens</b>  <b>Electrically tunable lens</b> </div>  <p>Optotune focus-tunable lenses for machine vision at 3.</p>
[25C] wherein said support member is at least partially electrically conductive;	<p>The Accused Products meet this limitation.</p> <p>On information and belief, the side wall, as part of the housing, in Optotune ML-20-37 is made of a metal material (e.g., aluminum) and therefore is at least partially electrically conductive.</p>
[25D] wherein the chamber is filled with a fluid;	<p>The Accused Products meet this limitation.</p> <p>The chamber defined by the side wall (i.e., support member) is filled with an optical fluid (also referred to as adaptive lens).</p>





	<p style="text-align: center;"><b>Working principle based on membrane and fluid</b></p> <hr style="border: 1px solid blue;"/> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p><b>Mechanically tunable lens</b></p> </div> <div style="text-align: center;">  <p><b>Electrically tunable lens</b></p> </div> </div>  <p>Optotune focus-tunable lenses for machine vision at 3.</p>
<p>[25E] wherein the first optical surface, the second optical surface, or the support member are configured such that application of an actuation force to one or more of the first optical surface, the second optical surface, or the support member results in a change in pressure in the chamber, thereby resulting in a deflection of one or more of the optical surfaces and thereby</p>	<p>The Accused Products meet this limitation.</p> <p>The Optotune ML-20-37 includes a rotatable outer ring configured to apply an actuation force at the outer portion of the membrane (i.e., first optical surface). The actuation force changes the pressure in the chamber that contains the optical fluid, thereby resulting in a deflection of the central portion of the membrane (i.e., first optical surface). The deflection of the membrane changes the focal power (i.e., optical property) of the Optotune ML-20-37.</p>

changing one or more optical properties of the fluidic lens.

### Manually Tunable Lens ML-20-37



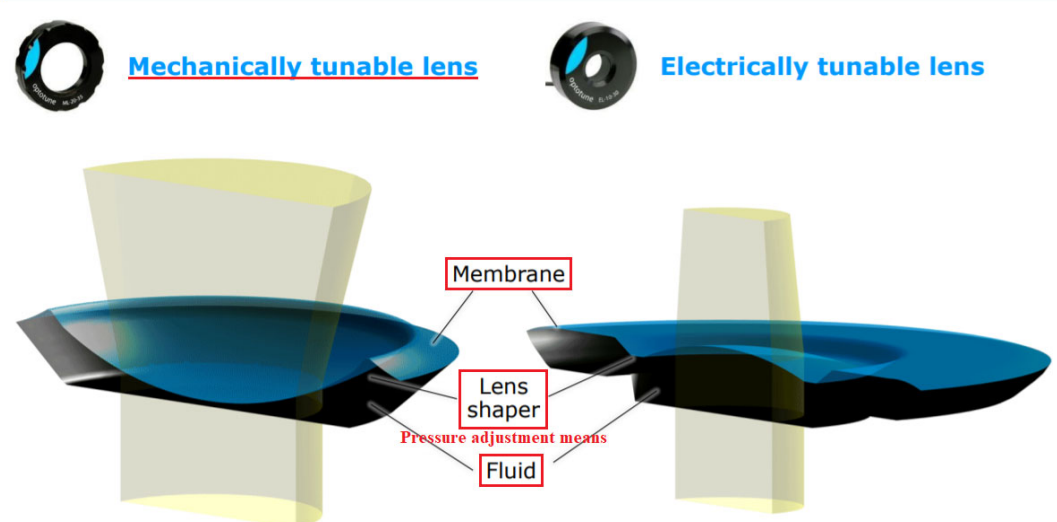
The curvature of the lens can be manually changed from convex to flat to concave by rotating the outer ring attached to the lens. The focal length is accordingly tuned to a desired value.

Optotune ML-20-37-Series Spec Sheet at 1.

### Working principle

Optotune's focus tunable lenses are shape-changing lenses based on a combination of optical fluids and a polymer membrane. The core element consists of a container, which is filled with an optical liquid and sealed off with a thin, elastic polymer membrane. A circular ring that pushes onto the center of the membrane shapes the tunable lens. The deflection of the membrane and with that the radius of the lens can be changed by pushing the ring towards the membrane, by exerting a pressure to the outer part of the membrane or by pumping liquid into or out of the container.

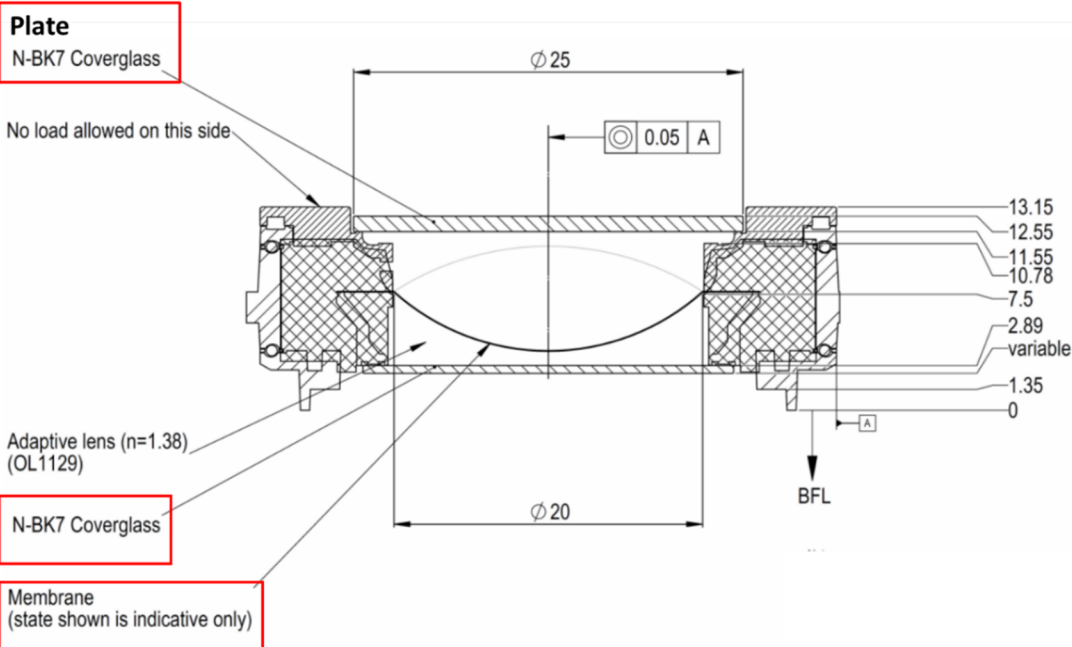
Optotune Focus tunable lenses at 1.

	<p><u>Working principle based on membrane and fluid</u></p>  <p>Optotune focus-tunable lenses for machine vision at 3.</p>
[28Pre] A fluidic lens device, comprising:	The Accused Products meet this limitation. <i>See Claim 25Pre supra.</i>
[28A] a fluidic lens having a first optical surface, a second optical surface; and	The Accused Products meet this limitation. <i>See Claim 25A supra.</i>
[28B] a support member disposed between the first and second optical surfaces defining a chamber;	The Accused Products meet this limitation. <i>See Claim 25B supra.</i>
[28C] wherein the chamber is filled with a fluid;	The Accused Products meet this limitation. <i>See Claim 25D supra.</i>

<p>[28D] wherein the first optical surface, the second optical surface, or the support member are configured such that application of an actuation force to one or more of the first optical surface, the second optical surface, or the support member results in a change in pressure in the chamber, thereby resulting in a deflection of one or more of the optical surfaces and thereby changing one or more optical properties of the fluidic lens; and</p>	<p>The Accused Products meet this limitation. <i>See</i> Claim 25E <i>supra</i>.</p>
<p>[28E] one or more plates in communication with one or more of the optical surfaces or the support member.</p>	<p>The Accused Products meet this limitation.</p> <p>The Optotune ML-20-37 includes a top cover glass (i.e., plate) in optical communication with the membrane (i.e., first optical surface) and the bottom cover glass (i.e., second optical surface).</p>

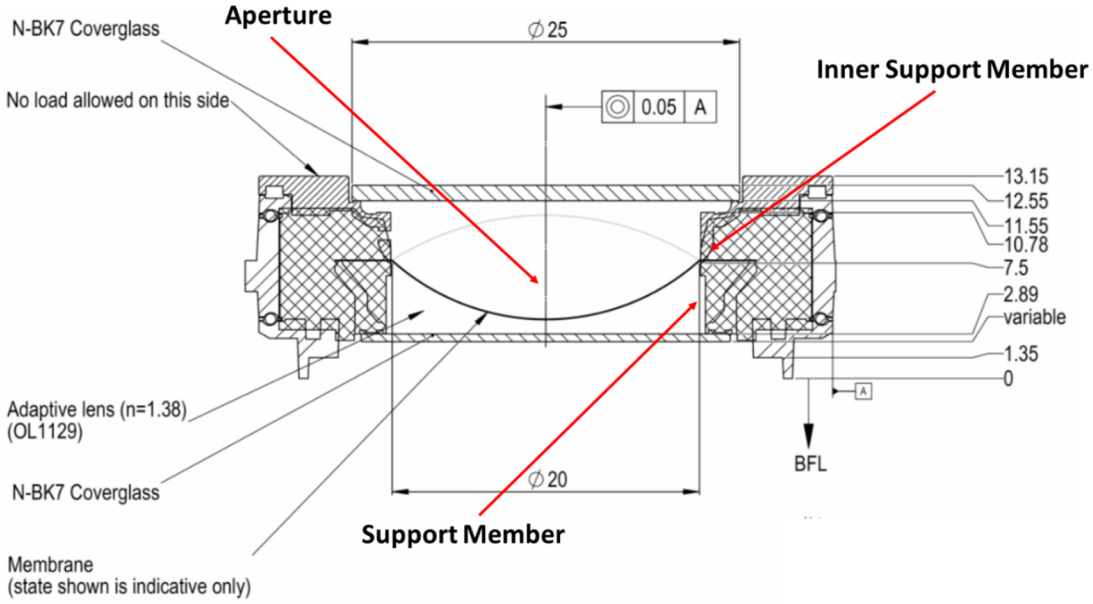
	<p>Optotune ML-20-37-Series Spec Sheet at 4.</p>
[29Pre] A fluidic lens device, comprising:	The Accused Products meet this limitation. <i>See Claim 25Pre supra.</i>
[29A] a fluidic lens having a first optical surface, a second optical surface; and	The Accused Products meet this limitation. <i>See Claim 25A supra.</i>
[29B] a support member disposed between the first and second optical surfaces defining a chamber;	The Accused Products meet this limitation. <i>See Claim 25B supra.</i>
[29C] wherein the chamber is filled with a fluid;	The Accused Products meet this limitation. <i>See Claim 25B supra.</i>

<p>[29D] wherein the first optical surface, the second optical surface, or the support member are configured such that application of an actuation force to one or more of the first optical surface, the second optical surface, or the support member results in a change in pressure in the chamber, thereby resulting in a deflection of one or more of the optical surfaces and thereby changing one or more optical properties of the fluidic lens; and</p>	<p>The Accused Products meet this limitation. <i>See</i> Claim 25E <i>supra</i>.</p>
<p>[29E] one or more plates in communication with one or more of the optical surfaces or the support member; wherein one or more of the plates includes one or more apertures.</p>	<p>The Accused Products meet this limitation.</p> <p>The Optotune ML-20-37 includes a top cover glass (i.e., plate) disposed in optical communication with the membrane (i.e., first optical surface) and the bottom cover glass (i.e., second optical surface). The top cover glass includes an optical aperture in order to pass light through the ML-20-37 and allow ML-20-37 to function properly as a lens.</p>

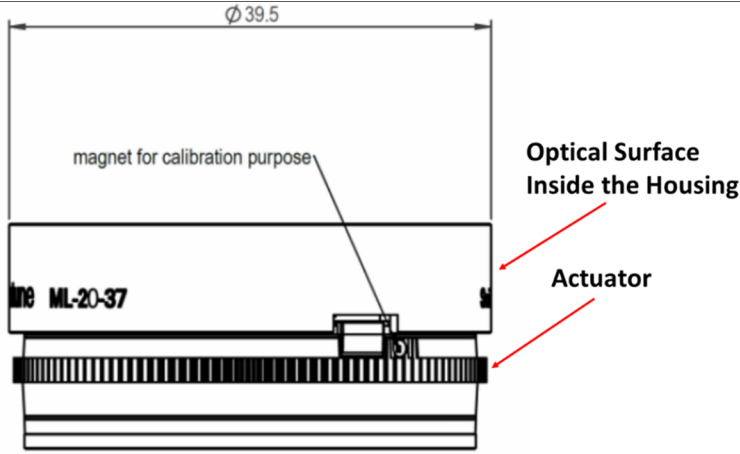
	 <p>Plate N-BK7 Coverglass</p> <p>No load allowed on this side</p> <p>Adaptive lens (n=1.38) (OL1129)</p> <p>N-BK7 Coverglass</p> <p>Membrane (state shown is indicative only)</p> <p>Optotune ML-20-37-Series Spec Sheet at 4.</p>
[30Pre] A fluidic lens device, comprising:	The Accused Products meet this limitation. <i>See Claim 25Pre supra.</i>
[30A] a fluidic lens having a first optical surface, a second optical surface; and	The Accused Products meet this limitation. <i>See Claim 25A supra.</i>
[30B] a support member disposed between the first and second optical surfaces defining a chamber;	The Accused Products meet this limitation. <i>See Claim 25B supra.</i>
[30C] wherein the chamber is filled with a fluid;	The Accused Products meet this limitation. <i>See Claim 30D supra.</i>



<p>[30D] wherein the first optical surface, the second optical surface, or the support member are configured such that application of an actuation force to one or more of the first optical surface, the second optical surface, or the support member results in a change in pressure in the chamber, thereby resulting in a deflection of one or more of the optical surfaces and thereby changing one or more optical properties of the fluidic lens; and</p>	<p>The Accused Products meet this limitation. <i>See</i> Claim 25E <i>supra</i>.</p>
<p>[30E] one or more inner support members located proximate an aperture, wherein the one or more inner support members are configured to support one or more of the optical surfaces relative to the aperture.</p>	<p>The Accused Products meet this limitation.</p> <p>The Optotune ML-20-37 includes at least one inner support member that is configured to support the membrane (i.e., first optical surface) by clamping the membrane together with the side wall (i.e., support member). The clamping fixes the membrane around an aperture at the center of the ML-20-37.</p>

	 <p>Optotune ML-20-37-Series Spec Sheet at 4.</p>
[35Pre] A fluidic lens device, comprising:	The Accused Products meet this limitation. <i>See Claim 25Pre supra.</i>
[35A] a fluidic lens having a first optical surface, a second optical surface; and	The Accused Products meet this limitation. <i>See Claim 35A supra.</i>
[35B] a support member disposed between the first and second optical surfaces defining a chamber;	The Accused Products meet this limitation. <i>See Claim 25B supra.</i>
[35C] wherein the chamber is filled with a fluid;	The Accused Products meet this limitation. <i>See Claim 25D supra.</i>

<p>[35D] wherein the first optical surface, the second optical surface, or the support member are configured such that application of an actuation force to one or more of the first optical surface, the second optical surface, or the support member results in a change in pressure in the chamber, thereby resulting in a deflection of one or more of the optical surfaces and thereby changing one or more optical properties of the fluidic lens; and</p>	<p>The Accused Products meet this limitation. <i>See</i> Claim 25E <i>supra</i>.</p>
<p>[35E] one or more actuators wherein one or more of said actuators are disposed in a unilateral fashion relative to the first and second optical surfaces.</p>	<p>The Accused Products meet this limitation.</p> <p>The Optotune ML-20-37 is based on manual actuation using an outer ring (i.e., actuator). The outer ring is disposed below both the membrane (i.e., first optical surface) and the bottom cover glass (i.e., second optical surface), i.e., the actuator is disposed in a unilateral fashion relative to the first and second optical surfaces.</p>

	 <p>Optotune ML-20-37-Series Spec Sheet at 2.</p>
[42Pre] A fluidic lens device, comprising:	The Accused Products meet this limitation. <i>See Claim 25Pre supra.</i>
[42A] a fluidic lens having a first optical surface, a second optical surface; and	The Accused Products meet this limitation. <i>See Claim 25A supra.</i>
[42B] a support member disposed between the first and second optical surfaces defining a chamber,	The Accused Products meet this limitation. <i>See Claim 25B supra.</i>
[42C] wherein said support member is at least partially rigid;	<p>The Accused Products meet this limitation.</p> <p>On information and belief, the side wall (i.e., support member) in Optotune ML-20-37 is made of a metal material and is at least partially rigid.</p> <p>Optotune ML-20-37-Series Spec Sheet at 2.</p>

[42D] wherein the chamber is filled with a fluid;	The Accused Products meet this limitation. <i>See</i> Claim 25D <i>supra</i> .
[42E] wherein the first optical surface, the second optical surface, or the support member are configured such that application of an actuation force to one or more of the first optical surface, the second optical surface, or the support member results in a change in pressure in the chamber, thereby resulting in a deflection of one or more of the optical surfaces and thereby changing one or more optical properties of the fluidic lens.	The Accused Products meet this limitation. <i>See</i> Claim 25E <i>supra</i> .